

APPENDIX A.—ASSUMPTIONS AND METHODS UNDERLYING THE MEDIUM-RANGE AND LONG-RANGE COST ESTIMATES

This appendix describes the assumptions and methods which underlie the medium-range and long-range cost estimates in this report. The descriptions pertain to the estimates under all of the four alternatives unless specifically stated otherwise. The basic assumptions comprising each alternative have been summarized in an earlier section entitled "Economic and Demographic Assumptions" and thus will be discussed here only in the context of the methods used. Further details about the assumptions, methods, and cost estimates will be published by the Office of the Actuary, Social Security Administration, shortly after the issuance of this report.

TOTAL POPULATION

Projections were made of the population in the Social Security Area by age, sex, and marital status for future years through 2060. The starting point was the U.S. population, including armed forces overseas on July 1, 1981, as estimated by the Bureau of the Census, based on the 1980 Census and adjusting for births, deaths, and net immigration during 1980-81. This population estimate was adjusted for net census undercount and was increased by the estimated populations in the geographic areas covered by the OASDI program but not included in the estimate made by the Bureau of the Census. The population in future years was then projected using assumed rates of birth and death and assumed net immigration.

Historically, fertility rates in the United States have fluctuated widely. The total fertility rate is defined to be the average number of children who would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, the selected year and if she were to survive the entire childbearing period. It decreased from 3.3 after World War I to 2.1 during the Great Depression, rose to about 3.7 in 1957 and then fell to 1.7 in 1976. Since that time, the total fertility rate has been around 1.8 children per woman.

The past variations in fertility rates have resulted from changes in social attitudes, economic conditions, and medical knowledge. Future fertility rates may exceed the present low level because such a low level has never been experienced in the United States over a long period of time, and because such a level is well below that needed to maintain a stable population, in the absence of increased immigration. There are, however, forces consistent with a continued low trend, such as the rising percentages of women never married, of women who are divorced, and of young women in the labor force. After considering these factors, ultimate total fertility rates of 2.3, 2.0, 2.0, and 1.6 children per woman were selected for alternatives I, II-A, II-B, and III, respectively. For each alternative, the total fertility rate was projected to reach its ultimate level in 2007. These ultimate values can be compared with those used by the Bureau of the Census in its latest series of population

projections.¹ The Bureau of the Census used a range of 1.6 to 2.3, with an intermediate assumption of 1.9. A rate of 2.1 would result in a nearly constant population if there were no net migration and if mortality were constant at levels close to current U.S. levels.

Historically, mortality rates in the United States have declined steadily. The age-adjusted death rate is the crude rate that would occur in the enumerated total population as of April 1, 1970, if that population were to experience the death rates by age for the selected year. It has declined at an average rate of 1.2 percent per year since 1900. The past reductions in mortality rates have resulted from many factors, including increased medical knowledge, increased availability of health-care services, and improvements in personal health-care practices such as diet and exercise. After considering how these and other factors might affect mortality, three alternative sets of annual percentage reductions in central death rates by sex and cause of death were assumed for the year 2007 and later. Of these three sets of assumptions, the second set, which is used for both alternatives II-A and II-B, is considered most likely to be realized. The average percentage reductions assumed in alternative I are less than those in alternatives II-A and II-B, while the average annual reductions assumed in alternative III are greater. Prior to 2007, mortality reductions under alternatives II-A and II-B are assumed to change gradually from the average annual reductions by age group, sex, and cause of death observed during 1968-78 to the annual reductions by sex and cause of death assumed for 2007 and later. Alternative I mortality reductions are assumed to change gradually from 50 percent of the average annual reductions observed during 1968-78, while alternative III mortality improvement is assumed to change gradually from 150 percent of the average annual improvement observed during 1968-78.

After adjustment for changes in the age distribution of the population, mortality under alternatives II-A and II-B is projected to decline at an average annual rate of about 0.6 percent per year during 1981-2057. This is about half the average rate of decline observed during 1900-1981.

Net immigration was assumed to be 450,000, 400,000, 400,000, and 350,000 persons per year in alternatives I, II-A, II-B, and III, respectively. The assumed net immigration does not include aliens entering the United States illegally, largely because no reliable estimate of their number exists. However, no significant emigration is assumed for the same reason. Those illegal aliens who were enumerated in the 1980 Census were automatically included in the starting population.

Table A1 shows the projected population by broad age groups under all four alternatives. Because many categories of OASDI benefits depend upon marital status, the population was projected by marital status as well as by age and sex. Marriage rates and divorce rates were based on recent data from the National Center for Health Statistics.

¹U.S. Bureau of the Census, Current Population Reports, Series P-25, No. 922, "Projections of the Population of the United States: 1982-2050 (Advanced Report)," U.S. Government Printing Office, Washington, D.C., October 1982.

TABLE A1.—SOCIAL SECURITY AREA POPULATION AS OF JULY 1 AND DEPENDENCY RATIOS BY ALTERNATIVE AND BROAD AGE GROUP, CALENDAR YEARS 1960-2060

| Calendar year | Population (in thousands) | | | Total | Dependency ratio | |
|-----------------------------|---------------------------|---------|-------------|---------|-------------------|--------------------|
| | Under 20 | 20-64 | 65 and over | | Aged ¹ | Total ² |
| 1960..... | 73,108 | 98,689 | 17,147 | 188,943 | 0.174 | 0.915 |
| 1965..... | 79,959 | 104,121 | 18,952 | 203,032 | .182 | .950 |
| 1970..... | 80,737 | 112,606 | 20,681 | 214,024 | .184 | .901 |
| 1975..... | 79,041 | 122,615 | 23,300 | 224,956 | .190 | .835 |
| 1980..... | 75,620 | 134,475 | 26,321 | 236,417 | .196 | .758 |
| Alternative I: | | | | | | |
| 1985..... | 74,011 | 144,516 | 29,147 | 247,674 | .202 | .714 |
| 1990..... | 75,779 | 151,308 | 32,052 | 259,139 | .212 | .713 |
| 1995..... | 78,775 | 157,229 | 33,919 | 269,922 | .216 | .717 |
| 2000..... | 81,542 | 163,875 | 34,610 | 280,028 | .211 | .709 |
| 2005..... | 83,227 | 171,593 | 35,455 | 290,275 | .207 | .692 |
| 2010..... | 85,537 | 177,677 | 37,992 | 301,206 | .214 | .695 |
| 2015..... | 88,770 | 180,152 | 43,278 | 312,201 | .240 | .733 |
| 2020..... | 92,479 | 180,872 | 49,413 | 322,765 | .273 | .784 |
| 2025..... | 95,761 | 180,926 | 56,050 | 332,737 | .310 | .839 |
| 2030..... | 98,378 | 183,078 | 60,872 | 342,328 | .332 | .870 |
| 2035..... | 101,158 | 188,057 | 62,553 | 351,768 | .333 | .871 |
| 2040..... | 104,444 | 194,484 | 62,225 | 361,153 | .320 | .857 |
| 2045..... | 108,047 | 200,994 | 61,562 | 370,604 | .306 | .844 |
| 2050..... | 111,559 | 206,559 | 62,312 | 380,430 | .302 | .842 |
| 2055..... | 114,854 | 212,401 | 63,773 | 391,029 | .300 | .841 |
| 2060..... | 118,153 | 219,163 | 65,305 | 402,620 | .298 | .837 |
| Alternatives II-A and II-B: | | | | | | |
| 1985..... | 73,811 | 144,510 | 29,406 | 247,727 | .203 | .714 |
| 1990..... | 74,747 | 151,265 | 32,659 | 258,670 | .216 | .710 |
| 1995..... | 76,336 | 157,178 | 35,077 | 268,590 | .223 | .709 |
| 2000..... | 77,192 | 163,823 | 36,338 | 277,353 | .222 | .693 |
| 2005..... | 76,486 | 171,436 | 37,681 | 285,603 | .220 | .666 |
| 2010..... | 76,311 | 176,787 | 40,687 | 293,765 | .230 | .662 |
| 2015..... | 77,108 | 177,840 | 46,492 | 301,440 | .261 | .695 |
| 2020..... | 78,325 | 176,605 | 53,222 | 308,152 | .301 | .745 |
| 2025..... | 79,097 | 174,079 | 60,584 | 313,759 | .348 | .802 |
| 2030..... | 79,257 | 172,948 | 66,215 | 318,420 | .383 | .841 |
| 2035..... | 79,410 | 174,193 | 68,673 | 322,275 | .394 | .850 |
| 2040..... | 79,937 | 176,402 | 69,014 | 325,354 | .391 | .844 |
| 2045..... | 80,711 | 178,177 | 68,860 | 327,748 | .386 | .839 |
| 2050..... | 81,381 | 178,466 | 69,919 | 329,766 | .392 | .848 |
| 2055..... | 81,817 | 178,929 | 71,100 | 331,846 | .397 | .855 |
| 2060..... | 82,179 | 180,213 | 71,913 | 334,305 | .399 | .855 |
| Alternative III: | | | | | | |
| 1985..... | 73,526 | 144,489 | 29,615 | 247,630 | .205 | .714 |
| 1990..... | 73,294 | 151,197 | 33,215 | 257,705 | .220 | .704 |
| 1995..... | 72,956 | 157,073 | 36,153 | 266,183 | .230 | .695 |
| 2000..... | 71,232 | 163,690 | 38,001 | 272,923 | .232 | .667 |
| 2005..... | 67,402 | 171,117 | 39,976 | 278,495 | .234 | .628 |
| 2010..... | 64,115 | 175,397 | 43,695 | 283,208 | .249 | .615 |
| 2015..... | 62,023 | 174,605 | 50,366 | 286,994 | .288 | .644 |
| 2020..... | 60,497 | 170,809 | 58,142 | 289,448 | .340 | .695 |
| 2025..... | 58,736 | 164,932 | 66,794 | 290,462 | .405 | .761 |
| 2030..... | 56,638 | 159,587 | 73,914 | 290,140 | .463 | .818 |
| 2035..... | 54,476 | 156,158 | 77,918 | 288,552 | .499 | .848 |
| 2040..... | 52,663 | 153,262 | 79,747 | 285,673 | .520 | .864 |
| 2045..... | 51,167 | 149,480 | 80,909 | 281,556 | .541 | .884 |
| 2050..... | 49,734 | 143,785 | 82,955 | 276,473 | .577 | .923 |
| 2055..... | 48,223 | 138,484 | 84,172 | 270,879 | .608 | .956 |
| 2060..... | 46,705 | 134,234 | 84,260 | 265,199 | .628 | .976 |

¹Population aged 65 and over as ratio to population aged 20-64.

²Population aged 65 and over plus population under age 20 as ratio to population aged 20-64.

Note: The definitions of alternatives I, II-A, II-B, and III are presented in the text. Totals do not necessarily equal the sum of rounded components.

COVERED POPULATION

The number of covered workers in a year is defined as the number of persons who work in covered employment at any time during that year. Projections of the number of covered workers were made by applying projected coverage rates to the number of people in the total population. The coverage rates—i.e., the number of workers with covered earnings in the year as a percentage of the total population—were projected by age and sex using projected labor force participation rates and unemployment rates, and their historical relationships to coverage rates. In addition, the coverage rates were adjusted to reflect the increases in covered employment in the non-profit and Federal government sectors of the economy that will result from the 1983 amendments.

Labor force participation rates were projected by age and sex, taking into account projections of the percentage of the population that is married, the percentage of the population that is disabled, the number of children in the population, and the state of the economy. In addition, recent trends in the labor force participation rates that cannot be fully explained by the above factors (such as much of the recent increase in the rate for women) were assumed to continue through the year 2000. All of these factors vary by alternative. For men, the projected age-adjusted labor force participation rates under alternatives I, II-A, and II-B for 2060 are, respectively, 3.3, 1.7, and 0.6 percentage points higher than the 1982 level of 76.7 percent, while the rate for alternative III is 0.9 percentage points lower. For women, the projected age-adjusted labor force participation rates increase under all of the alternatives. The assumed rates for 2060 are 10.4, 9.2, 7.4, and 6.5 percentage points, respectively, above the 1982 level of 52.7 percent.

The total age-sex-adjusted unemployment rate has averaged 5.2 percent over the 30 years 1953-82 and 6.8 percent over the 10 years 1973-82. The ultimate total age-sex-adjusted unemployment rates were assumed to be 4.0, 5.0, 5.5, and 6.5 percent in alternatives I, II-A, II-B, and III, respectively. In each alternative the unemployment rates are assumed to decline gradually, reaching their ultimate levels by the mid-1990's.

The projected age-adjusted coverage rate for men increases from its 1982 level of 73.8 percent to 80.0, 78.2, 77.1, and 75.3 percent in 2060 under alternatives I, II-A, II-B, and III, respectively. Correspondingly, for women, it increases from its 1982 level of 52.7 percent to 68.0, 66.2, 64.3, and 62.8 percent, respectively.

TAXABLE PAYROLL

The taxable payroll is that amount which, when multiplied by the combined employee-employer tax rate, yields the total amount of taxes paid by employees, employers, and the self-employed. Taxes paid by employers include, in 1983 and later, government contributions for deemed wage credits for military service. The taxable payroll is important not just in projecting OASDI income but also in defining cost rate, income rate, and actuarial balance. The cost rate is the cost of the OASDI program expressed as a percentage of taxable payroll. The income rate is the combined OASDI employee-employer tax rate plus the income from the taxation of benefits expressed as a percentage of taxable payroll. When both the cost rate and the income rate are defined

in this way, they can be compared directly to determine whether the actuarial balance is positive or negative.

In practice, the taxable payroll is calculated as a weighted average of the earnings on which employees, employers, and self-employed persons are taxed. The weighting takes into account the lower tax rates on tips, multiple-employer "excess wages," and self-employment income through 1983, as compared with the combined employee-employer rate. For 1983-92, the amounts of earnings for employees, employers, and the self-employed were projected separately. For 1993 and later, the amounts of taxable earnings for employees, employers, and the self-employed were each assumed to increase at the compounded growth rates for numbers of covered workers and average wages in covered employment.

The cost of the OASDI program can also be expressed as a percentage of the Gross National Product (GNP). Such percentages (which are shown in table 30) are based on the estimated cost rates and on the assumed ratios of taxable payroll to GNP which are presented in table A2. The projections of GNP were developed by applying a series of factors to the assumed ratio of total employee compensation in the economy to GNP, which was used as the starting point because it is a measure of the share of output going to workers. This ratio is also a convenient starting point because it has changed slowly over time and can be expected to remain fairly constant. Total employee compensation in the economy was related to taxable payroll by means of factors which adjust for various differences in the two measures. The factors adjust total employee compensation by removing supplements to wages and salaries; removing wages and salaries earned in noncovered employment; removing wages, salaries, and self-employment income earned above the taxable base; and adjusting for the lower tax rates on tips, multiple-employer "excess wages," and self-employment income through 1983.

The ratio of taxable payroll to GNP has risen since 1960, in part because of ad hoc increases in the contribution and benefit base. It will increase further beginning in 1984 as a result of the expanded coverage provided by the 1983 amendments. The long-range trend, however, is more likely to be downward because of increases in the ratio of non-wage employee compensation to total compensation. The ratio of wages to total employee compensation is assumed to decline ultimately by 0.1, 0.2, 0.3, and 0.4 percent per year under alternatives I, II-A, II-B, and III, respectively. This ratio has declined at average annual rates of 0.40 percent over the 30 years 1953-82 and 0.49 percent over the 10 years 1973-82.

TABLE A2.—RATIO OF TAXABLE PAYROLL TO GNP BY ALTERNATIVE, CALENDAR YEARS 1960-2060

| Calendar year | Past experience | | | |
|---------------|---------------------------|-------|-------|-------|
| | | | | |
| 1960 | 0.391 | | | |
| 1965 | .343 | | | |
| 1970 | .417 | | | |
| 1975 | .419 | | | |
| 1980 | .433 | | | |
| | Projected, by alternative | | | |
| | I | II-A | II-B | III |
| 1983 | 0.451 | 0.451 | 0.452 | 0.454 |
| 1985 | .442 | .441 | .441 | .437 |
| 1990 | .441 | .437 | .437 | .432 |
| 1995 | .441 | .436 | .433 | .428 |
| 2000 | .442 | .434 | .430 | .422 |
| 2005 | .442 | .432 | .425 | .416 |
| 2010 | .441 | .429 | .421 | .409 |
| 2015 | .439 | .426 | .415 | .402 |
| 2020 | .437 | .422 | .409 | .395 |
| 2025 | .435 | .418 | .404 | .387 |
| 2030 | .433 | .414 | .398 | .380 |
| 2035 | .431 | .410 | .392 | .373 |
| 2040 | .429 | .406 | .387 | .366 |
| 2045 | .427 | .402 | .381 | .359 |
| 2050 | .425 | .398 | .376 | .352 |
| 2055 | .423 | .394 | .371 | .346 |
| 2060 | .421 | .391 | .365 | .339 |

Note: The definitions of alternatives I, II-A, II-B, and III and taxable payroll are presented in the text.

INSURED POPULATION

There are three types of insured statuses under the OASDI program: fully, currently, and disability insured. Fully insured status is required of an aged worker for eligibility for a primary retirement benefit and for the eligibility of other persons to auxiliary benefits based on the worker's earnings. Fully insured status is also required of a deceased worker for survivors' eligibility for benefits (with the exception of child survivors and parents of eligible child survivors, in which cases the deceased worker is required to have had only currently insured status). Disability insured status, which is more restrictive than fully insured status, is required of a disabled worker for eligibility for a primary benefit and for the eligibility of other persons to auxiliary benefits based on the disabled worker's earnings.

Projections of the percentage of the population that is fully insured were made by age and sex based on past and projected coverage rates, the requirement for fully insured status, and the historical relationship between these factors. Currently insured status was disregarded in the cost projection, because the number of cases in which eligibility for benefits is based solely on currently insured status is relatively small. Projections of the percentage of the population that is disability insured were developed from the percentages of those who are fully insured by using projections of historical trends relating the two. Finally, the fully insured and disability insured populations were developed from the projected total population by applying the appropriate percentages.

The fully insured population by age and sex was further subdivided by marital status, in a manner consistent with the division of the total population by marital status. Married men were assumed more likely to be fully insured than were widowers who, in turn, were assumed more likely to be fully insured than were single and divorced men. By

contrast, single and divorced women were assumed more likely to be fully insured than were widows who, in turn, were assumed more likely to be fully insured than were married women. The relative difference between a widowed woman's probability of being fully insured and a married woman's was assumed to decrease through time, reflecting the projected large increase in labor force participation among married women.

OLD-AGE AND SURVIVORS INSURANCE BENEFICIARIES

Several types of benefits, at different benefit levels, are payable under the OASI program. Hence, the numbers of beneficiaries were projected by type of benefit.

The projected numbers of retired-worker beneficiaries were based on the projected aged fully insured population. The numbers of beneficiaries, by age and sex, as percentages of the insured population were projected to increase slightly until 1990 on the basis of past trends. In 1990 the percentages for ages 65 to 69 increase because of the change in the retirement earnings test included in the 1983 amendments. Beginning in the year 2000, the percentages decline for ages 62 through 69 because of the change in normal retirement age included in the 1983 amendments. Ultimate percentages are reached in the year 2030.

The number of wife beneficiaries aged 62 and over of retired-worker beneficiaries was estimated from the population projection by marital and insured status. All uninsured wives aged 62 and over—excluding those whose husbands do not receive retired-worker benefits, those whose benefits are withheld according to the retirement earnings test, and those affected by eligibility for a governmental pension from earnings in noncovered employment—were assumed to receive benefits. Beginning in 1985, an increase in the number of aged wife beneficiaries is projected because, as a result of the 1983 amendments, eligible divorced wives will no longer be required to wait to receive benefits until their former husbands are receiving benefits. The number of husband beneficiaries aged 62 and over of retired-worker beneficiaries was estimated in an analogous manner.

The projected numbers of eligible children (including disabled adult children and certain students aged 18 or over) of retired-worker beneficiaries were based on projected ratios of the number of such child beneficiaries to the number of retired workers by sex of worker, adjusted to reflect the fertility assumptions.

The number of young-wife beneficiaries was estimated by extrapolating the historical ratios of the number of such beneficiaries to the estimated number of child beneficiaries who are children of male retired-worker beneficiaries, and are either under age 16 or disabled with onset of disability before age 22. The estimating procedure takes into account projected changes in fertility and female labor force participation. The number of young-husband beneficiaries was not projected because of the negligible cost attributable to them.

The number of widow beneficiaries aged 60 and over was estimated from the population by marital and insured status. Virtually all uninsured widows aged 60 and over, excluding those whose deceased husbands were not fully insured, those whose benefits are withheld according to

the retirement earnings test, and those affected by eligibility for a governmental pension from earnings in noncovered employment, were assumed to receive benefits. In addition, some insured widows who had not applied for retired-worker benefits were assumed to receive widow benefits. The number of widower beneficiaries was estimated in an analogous manner.

The numbers of paternal, maternal, and full orphans under age 18 in the United States were estimated from the projected population at those ages by applying age-specific probabilities of being an orphan. These probabilities were derived by using distributions of age of parent at birth of child and death rates consistent with the population projections. To estimate the number of child-survivor beneficiaries, the number of orphans was adjusted to include eligible disabled orphans and certain students aged 18 and over, and to eliminate orphans of uninsured deceased parents.

The number of mother beneficiaries was estimated by a method similar to the one used to estimate the number of young-wife beneficiaries—i.e., extrapolating the present ratio of such beneficiaries to child-survivor beneficiaries who are either under age 16 or disabled with onset of disability before age 22. The number of father beneficiaries was estimated in an analogous manner.

The number of parent beneficiaries was projected on the basis of the past trend in the number of such beneficiaries. A decrease was assumed from the actual figure of 13,000 in the middle of 1982 to an ultimate level of 7,000 in 1995.

Table A3 shows the estimated numbers of beneficiaries under the OASI program. Included among the beneficiaries who receive retired-worker benefits are some persons who also receive residual benefits consisting of the excess of any potential auxiliary benefits over their retired-worker benefits. Estimates of the number of such residual payments were made separately for wives, widows, husbands, and widowers. Residual payments to other beneficiaries were not taken into account, because of the negligible cost involved.

TABLE A3.—OASI BENEFICIARIES WITH MONTHLY BENEFITS IN CURRENT-PAYMENT STATUS AS OF JUNE 30 BY ALTERNATIVE, CALENDAR YEARS 1960-2060
[In thousands]

| Calendar year | Retired workers and auxiliaries | | | Survivors | | | Total | |
|----------------|---------------------------------|--------------|-------|---------------|---------------|--------------|-------|--------|
| | Worker | Wife-husband | Child | Widow-widower | Mother-father | Child Parent | | |
| 1960..... | 7,813 | 2,224 | 260 | 1,471 | 388 | 1,549 | 35 | 13,740 |
| 1965..... | 10,843 | 2,601 | 429 | 2,226 | 472 | 1,900 | 36 | 18,509 |
| 1970..... | 13,066 | 2,651 | 535 | 3,151 | 514 | 2,673 | 29 | 22,618 |
| 1975..... | 16,210 | 2,836 | 633 | 3,823 | 568 | 2,905 | 22 | 26,998 |
| 1976..... | 16,789 | 2,867 | 638 | 3,939 | 576 | 2,911 | 21 | 27,740 |
| 1977..... | 17,380 | 2,899 | 670 | 4,042 | 573 | 2,843 | 19 | 28,428 |
| 1978..... | 17,924 | 2,942 | 662 | 4,147 | 569 | 2,800 | 18 | 29,062 |
| 1979..... | 18,590 | 2,966 | 651 | 4,260 | 567 | 2,739 | 17 | 29,789 |
| 1980..... | 19,167 | 2,987 | 633 | 4,354 | 560 | 2,668 | 15 | 30,385 |
| 1981..... | 19,792 | 3,010 | 639 | 4,446 | 549 | 2,624 | 14 | 31,074 |
| 1982..... | 20,392 | 3,019 | 522 | 4,540 | 520 | 2,201 | 13 | 31,207 |
| Alternative I: | | | | | | | | |
| 1983..... | 20,964 | 3,028 | 536 | 4,615 | 492 | 2,210 | 12 | 31,856 |
| 1985..... | 22,351 | 3,104 | 506 | 4,749 | 460 | 1,962 | 10 | 33,142 |
| 1990..... | 25,162 | 3,264 | 508 | 5,047 | 439 | 1,803 | 8 | 36,230 |
| 1995..... | 26,642 | 3,294 | 520 | 5,161 | 463 | 1,985 | 7 | 38,072 |
| 2000..... | 27,515 | 3,166 | 523 | 5,100 | 500 | 2,097 | 7 | 38,908 |
| 2005..... | 28,742 | 3,029 | 548 | 5,000 | 526 | 2,196 | 7 | 40,048 |
| 2010..... | 31,472 | 3,022 | 621 | 4,941 | 542 | 2,289 | 7 | 42,894 |
| 2015..... | 36,494 | 3,163 | 747 | 4,915 | 555 | 2,368 | 7 | 48,249 |

TABLE A3.—OASI BENEFICIARIES WITH MONTHLY BENEFITS IN CURRENT-PAYMENT STATUS AS OF JUNE 30 BY ALTERNATIVE, CALENDAR YEARS 1960-2060 (Cont.)
[In thousands]

| Calendar year | Retired workers and auxiliaries | | | Survivors | | | | Total |
|-------------------|---------------------------------|--------------|-------|---------------|---------------|-------|--------|--------|
| | Worker | Wife-husband | Child | Widow-widower | Mother-father | Child | Parent | |
| Alternative I: | | | | | | | | |
| (Cont.) | | | | | | | | |
| 2020 | 42,295 | 3,289 | 863 | 4,981 | 555 | 2,434 | 7 | 54,424 |
| 2025 | 47,737 | 3,336 | 936 | 5,103 | 550 | 2,494 | 7 | 60,163 |
| 2030 | 51,621 | 3,255 | 949 | 5,199 | 551 | 2,545 | 7 | 64,127 |
| 2035 | 53,652 | 3,090 | 932 | 5,252 | 566 | 2,602 | 7 | 66,101 |
| 2040 | 53,739 | 2,886 | 897 | 5,209 | 586 | 2,672 | 7 | 65,996 |
| 2045 | 53,833 | 2,768 | 905 | 5,129 | 602 | 2,741 | 7 | 65,985 |
| 2050 | 54,692 | 2,775 | 943 | 5,032 | 616 | 2,821 | 7 | 66,886 |
| 2055 | 56,048 | 2,847 | 983 | 4,969 | 631 | 2,898 | 7 | 68,383 |
| 2060 | 57,450 | 2,926 | 1,005 | 4,961 | 650 | 2,971 | 7 | 69,970 |
| Alternative II-A: | | | | | | | | |
| 1983 | 20,977 | 3,030 | 536 | 4,625 | 492 | 2,210 | 12 | 31,882 |
| 1985 | 22,401 | 3,113 | 506 | 4,772 | 460 | 1,960 | 10 | 33,222 |
| 1990 | 25,436 | 3,308 | 506 | 5,113 | 432 | 1,770 | 8 | 36,572 |
| 1995 | 27,512 | 3,459 | 528 | 5,216 | 421 | 1,787 | 7 | 38,930 |
| 2000 | 28,833 | 3,390 | 525 | 5,174 | 434 | 1,790 | 7 | 40,153 |
| 2005 | 30,457 | 3,300 | 551 | 5,101 | 438 | 1,782 | 7 | 41,636 |
| 2010 | 33,570 | 3,330 | 612 | 5,052 | 443 | 1,789 | 7 | 44,803 |
| 2015 | 39,027 | 3,508 | 721 | 5,027 | 446 | 1,791 | 7 | 50,527 |
| 2020 | 45,328 | 3,687 | 821 | 5,084 | 438 | 1,789 | 7 | 57,154 |
| 2025 | 51,391 | 3,782 | 887 | 5,192 | 427 | 1,785 | 7 | 63,471 |
| 2030 | 55,963 | 3,744 | 897 | 5,302 | 418 | 1,770 | 7 | 68,101 |
| 2035 | 58,711 | 3,599 | 883 | 5,380 | 419 | 1,784 | 7 | 70,763 |
| 2040 | 59,387 | 3,404 | 852 | 5,379 | 424 | 1,758 | 7 | 71,211 |
| 2045 | 59,961 | 3,277 | 856 | 5,328 | 423 | 1,756 | 7 | 71,608 |
| 2050 | 61,015 | 3,273 | 889 | 5,231 | 420 | 1,753 | 7 | 72,588 |
| 2055 | 62,116 | 3,318 | 911 | 5,131 | 419 | 1,751 | 7 | 73,653 |
| 2060 | 62,895 | 3,364 | 913 | 5,056 | 419 | 1,748 | 7 | 74,402 |
| Alternative II-B: | | | | | | | | |
| 1983 | 20,977 | 3,030 | 536 | 4,625 | 492 | 2,210 | 12 | 31,882 |
| 1985 | 22,401 | 3,113 | 506 | 4,772 | 460 | 1,960 | 10 | 33,222 |
| 1990 | 25,435 | 3,308 | 506 | 5,113 | 432 | 1,770 | 8 | 36,571 |
| 1995 | 27,504 | 3,462 | 528 | 5,218 | 421 | 1,787 | 7 | 38,927 |
| 2000 | 28,814 | 3,398 | 524 | 5,180 | 434 | 1,787 | 7 | 40,144 |
| 2005 | 30,422 | 3,312 | 550 | 5,109 | 438 | 1,782 | 7 | 41,620 |
| 2010 | 33,509 | 3,352 | 611 | 5,063 | 442 | 1,786 | 7 | 44,770 |
| 2015 | 38,929 | 3,543 | 719 | 5,050 | 446 | 1,789 | 7 | 50,483 |
| 2020 | 45,193 | 3,735 | 819 | 5,114 | 438 | 1,787 | 7 | 57,093 |
| 2025 | 51,214 | 3,852 | 885 | 5,230 | 426 | 1,781 | 7 | 63,395 |
| 2030 | 55,750 | 3,829 | 896 | 5,354 | 418 | 1,770 | 7 | 68,024 |
| 2035 | 58,462 | 3,694 | 882 | 5,447 | 419 | 1,760 | 7 | 70,671 |
| 2040 | 59,131 | 3,503 | 850 | 5,459 | 423 | 1,757 | 7 | 71,130 |
| 2045 | 59,686 | 3,382 | 855 | 5,420 | 422 | 1,753 | 7 | 71,527 |
| 2050 | 60,727 | 3,384 | 887 | 5,332 | 420 | 1,751 | 7 | 72,508 |
| 2055 | 61,807 | 3,431 | 909 | 5,239 | 418 | 1,749 | 7 | 73,560 |
| 2060 | 62,582 | 3,480 | 911 | 5,162 | 419 | 1,747 | 7 | 74,308 |
| Alternative III: | | | | | | | | |
| 1983 | 20,988 | 3,032 | 536 | 4,632 | 492 | 2,210 | 12 | 31,902 |
| 1985 | 22,444 | 3,121 | 505 | 4,798 | 458 | 1,955 | 10 | 33,290 |
| 1990 | 25,689 | 3,348 | 502 | 5,191 | 422 | 1,728 | 8 | 36,888 |
| 1995 | 28,309 | 3,615 | 537 | 5,261 | 383 | 1,610 | 7 | 39,722 |
| 2000 | 30,068 | 3,627 | 529 | 5,249 | 373 | 1,509 | 7 | 41,362 |
| 2005 | 32,180 | 3,610 | 539 | 5,195 | 358 | 1,399 | 7 | 43,288 |
| 2010 | 35,836 | 3,717 | 579 | 5,163 | 348 | 1,322 | 7 | 46,972 |
| 2015 | 41,958 | 4,004 | 663 | 5,151 | 340 | 1,249 | 7 | 53,372 |
| 2020 | 49,115 | 4,292 | 736 | 5,197 | 325 | 1,184 | 7 | 60,856 |
| 2025 | 56,227 | 4,505 | 790 | 5,294 | 308 | 1,123 | 7 | 68,254 |
| 2030 | 62,055 | 4,589 | 803 | 5,390 | 292 | 1,069 | 7 | 74,205 |
| 2035 | 66,152 | 4,548 | 792 | 5,495 | 281 | 1,012 | 7 | 78,287 |
| 2040 | 68,151 | 4,411 | 765 | 5,557 | 271 | 958 | 7 | 80,120 |
| 2045 | 69,908 | 4,314 | 769 | 5,553 | 256 | 914 | 7 | 81,721 |
| 2050 | 71,711 | 4,313 | 788 | 5,487 | 243 | 870 | 7 | 83,419 |
| 2055 | 72,827 | 4,332 | 789 | 5,363 | 232 | 829 | 7 | 84,379 |
| 2060 | 72,990 | 4,318 | 776 | 5,228 | 221 | 794 | 7 | 84,334 |

Note: The definitions of alternatives I, II-A, II-B, and III are presented in the text. The numbers of beneficiaries do not include certain uninsured persons, most of whom attained age 72 before 1968 and have less than 3 quarters of coverage, and for whom the costs are reimbursed by the general fund of the Treasury. The number of such uninsured persons was 68,923 as of June 30, 1982, and is estimated to be less than 500 by the turn of the century. Totals do not necessarily equal the sum of the rounded components.

DISABILITY INSURANCE BENEFICIARIES

The number of disabled-worker beneficiaries was projected from the exposed population, which was developed from the disability insured population by removing those persons already entitled to disabled-worker benefits. The number of newly entitled beneficiaries was developed from the exposed population by applying assumed disability incidence rates by age and sex. To obtain the number of currently entitled beneficiaries, assumed termination rates were applied to the currently entitled disabled-worker population.

The disability incidence rates, which declined during 1978-82, are assumed to increase steadily from 1983 through 2002, when they reach an ultimate level which, under alternatives II-A and II-B, is about 15 percent higher than the average level for 1980-82. In alternatives I and III, the disability incidence rates follow patterns similar to the one in alternatives II-A and II-B except that the ultimate levels are the same as the average for 1980-82 and 30 percent higher, respectively.

The termination rates were estimated by age, sex, and duration of entitlement. The mortality rates used throughout the projection period were assumed to be the same as those experienced by disabled-worker beneficiaries during 1977-80. The recovery rates were assumed to be 20 percent higher than those of the same period, thereby allowing for the assumed effect of the periodic reviews required by the Social Security Disability Amendments of 1980. All disabled-worker benefits are automatically converted to old-age benefits at normal retirement age.

The number of eligible children (including disabled adult children and certain students aged 18 or over) was projected as a proportion of the number of disabled-worker beneficiaries, by sex, based on recent experience and allowing for projected changes in fertility.

The number of young-wife beneficiaries was estimated by extrapolating the historical ratios of the number of such beneficiaries to the estimated number of child beneficiaries who are children of male disabled-worker beneficiaries and are either under age 16 or disabled with onset of disability before age 22. The estimating procedure takes into account projected changes in fertility and female labor force participation. The number of young-husband beneficiaries was projected in an analogous manner.

The number of aged-wife beneficiaries was projected as a proportion of the number of male disabled-worker beneficiaries. The number of aged-husband beneficiaries was projected in an analogous manner.

Table A4 shows the projected number of beneficiaries in the DI program.

TABLE A4.—DI BENEFICIARIES WITH MONTHLY BENEFITS IN CURRENT-PAYMENT STATUS AS OF JUNE 30 BY ALTERNATIVE, CALENDAR YEARS 1960-2060
[In thousands]

| Calendar year | Dependents of disabled workers | | | Total |
|--------------------------|--------------------------------|--------------------|----------|-------|
| | Disabled workers | Wives and husbands | Children | |
| 1960 | 371 | 56 | 94 | 522 |
| 1965 | 944 | 187 | 518 | 1,648 |
| 1970 | 1,436 | 271 | 861 | 2,568 |
| 1975 | 2,363 | 429 | 1,333 | 4,125 |
| 1976 | 2,602 | 468 | 1,462 | 4,533 |
| 1977 | 2,755 | 482 | 1,496 | 4,733 |
| 1978 | 2,858 | 491 | 1,512 | 4,861 |
| 1979 | 2,877 | 483 | 1,466 | 4,826 |
| 1980 | 2,863 | 468 | 1,403 | 4,734 |
| 1981 | 2,835 | 450 | 1,350 | 4,636 |
| 1982 | 2,713 | 399 | 1,071 | 4,184 |
| Alternative I: | | | | |
| 1983 | 2,570 | 362 | 996 | 3,928 |
| 1985 | 2,484 | 318 | 952 | 3,754 |
| 1990 | 2,495 | 312 | 936 | 3,743 |
| 1995 | 2,531 | 301 | 873 | 3,705 |
| 2000 | 2,851 | 332 | 967 | 4,149 |
| 2005 | 3,908 | 378 | 1,087 | 5,371 |
| 2010 | 4,092 | 423 | 1,211 | 5,725 |
| 2015 | 4,378 | 455 | 1,315 | 6,148 |
| 2020 | 4,505 | 477 | 1,388 | 6,370 |
| 2025 | 4,713 | 483 | 1,399 | 6,595 |
| 2030 | 4,709 | 475 | 1,367 | 6,551 |
| 2035 | 4,634 | 472 | 1,367 | 6,473 |
| 2040 | 4,755 | 486 | 1,416 | 6,656 |
| 2045 | 4,945 | 509 | 1,485 | 6,939 |
| 2050 | 5,043 | 524 | 1,532 | 7,100 |
| 2055 | 5,196 | 535 | 1,560 | 7,291 |
| 2060 | 5,294 | 546 | 1,597 | 7,437 |
| Alternative II-A: | | | | |
| 1983 | 2,571 | 362 | 996 | 3,929 |
| 1985 | 2,497 | 319 | 957 | 3,773 |
| 1990 | 2,589 | 324 | 971 | 3,883 |
| 1995 | 2,762 | 321 | 924 | 4,008 |
| 2000 | 3,182 | 355 | 1,023 | 4,559 |
| 2005 | 4,349 | 401 | 1,134 | 5,884 |
| 2010 | 4,612 | 444 | 1,240 | 6,305 |
| 2015 | 4,955 | 472 | 1,326 | 6,743 |
| 2020 | 5,092 | 489 | 1,379 | 6,960 |
| 2025 | 5,271 | 490 | 1,371 | 7,132 |
| 2030 | 5,220 | 477 | 1,324 | 7,020 |
| 2035 | 5,108 | 468 | 1,303 | 6,879 |
| 2040 | 5,193 | 475 | 1,328 | 6,996 |
| 2045 | 5,319 | 489 | 1,366 | 7,173 |
| 2050 | 5,305 | 491 | 1,375 | 7,172 |
| 2055 | 5,332 | 489 | 1,365 | 7,191 |
| 2060 | 5,324 | 487 | 1,362 | 7,173 |
| Alternative II-B: | | | | |
| 1983 | 2,571 | 362 | 996 | 3,929 |
| 1985 | 2,496 | 319 | 957 | 3,773 |
| 1990 | 2,588 | 323 | 970 | 3,881 |
| 1995 | 2,761 | 321 | 924 | 4,006 |
| 2000 | 3,178 | 355 | 1,022 | 4,555 |
| 2005 | 4,344 | 401 | 1,133 | 5,878 |
| 2010 | 4,614 | 444 | 1,239 | 6,297 |
| 2015 | 4,945 | 472 | 1,324 | 6,741 |
| 2020 | 5,080 | 489 | 1,378 | 6,947 |
| 2025 | 5,258 | 490 | 1,369 | 7,117 |
| 2030 | 5,206 | 476 | 1,321 | 7,003 |
| 2035 | 5,094 | 467 | 1,301 | 6,862 |
| 2040 | 5,179 | 475 | 1,326 | 6,980 |
| 2045 | 5,304 | 489 | 1,363 | 7,156 |
| 2050 | 5,290 | 491 | 1,373 | 7,153 |
| 2055 | 5,323 | 489 | 1,362 | 7,174 |
| 2060 | 5,309 | 487 | 1,359 | 7,155 |

TABLE A4.—DI BENEFICIARIES WITH MONTHLY BENEFITS IN CURRENT-PAYMENT STATUS AS OF JUNE 30 BY ALTERNATIVE, CALENDAR YEARS 1960-2060 (Cont.)
[In thousands]

| Calendar year | Dependents of disabled workers | | | Total |
|------------------|--------------------------------|--------------------|----------|-------|
| | Disabled workers | Wives and husbands | Children | |
| Alternative III: | | | | |
| 1983 | 2,572 | 362 | 997 | 3,931 |
| 1985 | 2,505 | 320 | 961 | 3,786 |
| 1990 | 2,668 | 333 | 1,001 | 4,002 |
| 1995 | 2,990 | 336 | 958 | 4,284 |
| 2000 | 3,506 | 369 | 1,042 | 4,917 |
| 2005 | 4,781 | 408 | 1,118 | 6,307 |
| 2010 | 5,137 | 442 | 1,179 | 6,757 |
| 2015 | 5,513 | 461 | 1,222 | 7,195 |
| 2020 | 5,653 | 468 | 1,237 | 7,358 |
| 2025 | 5,792 | 461 | 1,202 | 7,455 |
| 2030 | 5,679 | 441 | 1,137 | 7,258 |
| 2035 | 5,508 | 425 | 1,094 | 7,027 |
| 2040 | 5,521 | 422 | 1,086 | 7,029 |
| 2045 | 5,521 | 423 | 1,082 | 7,026 |
| 2050 | 5,319 | 409 | 1,050 | 6,779 |
| 2055 | 5,163 | 393 | 1,002 | 6,558 |
| 2060 | 4,974 | 377 | 962 | 6,313 |

Note: The definitions of alternatives I, II-A, II-B, and III are presented in the text. Totals do not necessarily equal the sum of rounded components.

AVERAGE WAGES AND INFLATION

Future increases in the Consumer Price Index and in average wages will directly affect the OASDI program. In addition to the direct effect of higher wages on taxable payroll and on benefits subsequently based on that higher payroll, the automatic adjustment provisions in the law require that the benefit formula, the taxable earnings base, the exempt amounts under the retirement earnings test, and the amount of earnings required for a quarter of coverage be adjusted to reflect increases in average wages, and that benefit payments be adjusted to reflect increases in the CPI.

The ultimate real-wage differentials were based primarily on projections of historical trends. Both the analysis of these trends and the projections took into account productivity gains and the factors linking productivity gains with the real-wage differential. Over the 30 years 1952-82, annual increases in productivity have averaged 2.1 percent, the result of average increases of 0.9, 2.8, and 2.7 percent in each of the 10-year periods 1972-82, 1962-72, and 1952-62, respectively. Meanwhile, the real-wage differential has averaged 1.1 percent over the 30 years 1953-82, the result of an average decrease of 0.9 percent and average increases of 1.8 and 2.5 percent, respectively, in the previously mentioned periods. The linkage between annual increases in productivity and the real-wage differential has averaged 1.0 percent over the 30 years 1953-82 and 1.8 percent over the 10 years 1973-82. The linkage reflects changes in such factors as the average number of hours worked per year, the extent to which employees share in the returns of production, and the proportion of employee compensation paid as wages.

The ultimate annual increases in productivity are assumed to be 2.7, 2.4, 2.1, and 1.8 percent for alternatives I, II-A, II-B, and III, respectively. The corresponding ultimate annual declines in the linkage were assumed to be 0.2, 0.4, 0.6, and 0.8 percent. The resulting ultimate real-wage differentials were 2.5, 2.0, 1.5, and 1.0 percent.

In alternative II-A, the CPI was assumed to increase ultimately at an annual rate of 3 percent. In alternative II-B, the CPI was assumed to increase ultimately at an annual rate of 4 percent, which is slightly lower than the average of 4.3 percent experienced over the 30 years 1952-82. The ultimate increases in the average annual CPI under alternatives I and III of 2 percent and 5 percent, respectively, were chosen to include a reasonable range of possible values.

The ultimate increases in average annual wages in covered employment were assumed to be 4.5, 5.0, 5.5, and 6.0 percent, for alternatives I, II-A, II-B, and III, respectively. These were obtained by adding the corresponding annual percentage increases in the CPI to the assumed real-wage differentials for each alternative.

AVERAGE BENEFITS

Future increases in the average primary insurance amount (PIA) for newly awarded benefits were projected by simulating the automatic benefit adjustment provisions and calculating future PIA's for workers, by sex, at various earnings levels. Separate projections of average PIA were made based on the earnings of male and female workers and in each case for four separate benefit-type categories: retired workers and their families, young survivors, aged survivors, and disabled workers and their families.

Future increases in the average PIA for beneficiaries in current-payment status were projected by sex of worker and type of benefit on the basis of the distribution of current beneficiaries by year of award, their average awarded PIA, and the increase in their average PIA since the year of award.

For several types of benefits, the percentage of PIA that is payable depends upon the age at which entitlement to benefits begins. Included are retired worker, aged spouse, aged widow(er), and disabled widow(er) benefits. Projected changes in the average benefit level as a percentage of PIA for each of these beneficiary types were based on projections of the age distribution at initial entitlement. The average percentage of PIA payable is projected to change significantly in future years because of several provisions included in the 1983 amendments, foremost of which is the provision to change the normal retirement age starting in the year 2000.

BENEFIT PAYMENTS

For each category of beneficiary, monthly benefit payments were calculated as the product of the number of beneficiaries and the corresponding average benefit. These amounts were then adjusted to include retroactive payments to newly awarded beneficiaries. Retroactive payments are made for months of entitlement between the date of application for benefits and the date of first payment and for as many as 6 months (or 12 months for disabled widow(er)s and for all DI beneficiaries) prior to the date of filing during which eligibility requirements are satisfied, but only if benefits are not thereby permanently reduced for early entitlement (widow(er)s are permitted one month of retroactive benefits in such cases, as a result of the 1983 amendments).

Lump-sum death payments were calculated as the product of the number of such payments, which was projected based on the assumed

mortality rates, the projected fully insured population, the estimated percentage of the fully insured population that would qualify for benefits, and the amount of the lump-sum death payment, which is \$255.00 in all cases.

ADMINISTRATIVE EXPENSES

The projection of administrative expenses through 1992 was based on assumed increases in average wages, increases in the CPI, and increases in the number of beneficiaries. For years after 1992, administrative expenses were assumed to increase at approximately the compounded rates of increase in the number of beneficiaries and in average wages in covered employment.

RAILROAD RETIREMENT FINANCIAL INTERCHANGE

The effect of the financial interchange with the Railroad Retirement program was evaluated on the basis of trends similar to those used in estimating the cost of OASDI benefits. The resulting effect was an average annual long-range cost to the OASDI system of 0.01 percent of taxable payroll.

BENEFITS TO UNINSURED PERSONS

The law provides for benefit payments to certain uninsured persons who attained age 72 before 1968. These benefits are paid from the OASI Trust Fund, which is then reimbursed in full (including interest and administrative expenses) from the general fund of the Treasury. Neither the benefit payments nor the reimbursements are reflected in the cost rates or the income rates. However, these amounts are reflected in tables which show trust fund operations.

APPENDIX B.—SENSITIVITY ANALYSIS

This appendix illustrates the sensitivity of the medium-range and long-range OASDI estimates to changes in certain assumptions. Although the estimates under the four alternatives illustrate the variations in the projected actuarial balances resulting from different combinations of assumptions, they do not show the variations resulting from changes in any single assumption. In this sensitivity analysis, alternative II-B is used as the starting set of assumptions, and one assumption at a time within that alternative is varied. Similar variations in the selected assumptions within the other alternatives would result in similar relative variations in actuarial balances.

Recent reports have illustrated the sensitivity of the estimates to changes in economic and demographic assumptions. Because of time constraints, this report shows only the sensitivity to economic assumptions.

CONSUMER PRICE INDEX

Table B1 shows the estimated average annual OASDI cost rate, total income rate, and balance on the basis of alternative II-B with various CPI assumptions. These assumptions are that the ultimate annual CPI increase will be 2 percent (as in alternative I), 3 percent (as in alternative II-A), 4 percent (as in alternative II-B), 5 percent (as in alternative III), and 6 percent. In each case the ultimate real-wage differential is assumed to be 1.5 percent (as under the unmodified alternative II-B), yielding ultimate percentage increases in average annual wages of 3.5, 4.5, 5.5, 6.5, and 7.5 percent, respectively. The annual CPI increase is assumed to gradually reach its ultimate value in 1989.

TABLE B1.—ESTIMATED AVERAGE ANNUAL OASDI COST RATE, TOTAL INCOME RATE, AND BALANCE UNDER ALTERNATIVE II-B WITH VARIOUS CONSUMER PRICE INDEX ASSUMPTIONS
(As a percentage of taxable payroll)

| Calendar years | Ultimate percentage increase in wages-CPI ¹ | | | | |
|-----------------------------------|--|-------|-------|-------|-------|
| | 3.5-2 | 4.5-3 | 5.5-4 | 6.5-5 | 7.5-6 |
| Average cost rate: | | | | | |
| 1983-2007..... | 10.88 | 10.77 | 10.66 | 10.56 | 10.46 |
| 2008-2032..... | 13.04 | 12.83 | 12.64 | 12.44 | 12.26 |
| 2033-2057..... | 15.73 | 15.47 | 15.23 | 14.98 | 14.76 |
| 1983-2057..... | 13.22 | 13.02 | 12.84 | 12.66 | 12.49 |
| Average total income rate: | | | | | |
| 1983-2007..... | 12.50 | 12.50 | 12.50 | 12.49 | 12.49 |
| 2008-2032..... | 12.97 | 12.96 | 12.95 | 12.94 | 12.94 |
| 2033-2057..... | 13.18 | 13.16 | 13.15 | 13.14 | 13.13 |
| 1983-2057..... | 12.88 | 12.87 | 12.87 | 12.86 | 12.85 |
| Balance: | | | | | |
| 1983-2007..... | +1.62 | +1.73 | +1.83 | +1.93 | +2.03 |
| 2008-2032..... | -.07 | +.13 | +.32 | +.50 | +.68 |
| 2033-2057..... | -2.56 | -2.31 | -2.08 | -1.85 | -1.64 |
| 1983-2057..... | -.33 | -.15 | +.02 | +.20 | +.36 |

¹The first value in each pair is the assumed annual percentage increase in average wages in 1993 and later years. The second value is the assumed annual percentage increase in CPI in 1989 and later years. The assumptions used in earlier years gradually merge into the ultimate values.

Note: The definitions of alternative II-B, cost rate, total income rate, balance, and taxable payroll are presented in the text.

Over both the medium-range and long-range periods, the average cost rate decreases as the assumed rate of change in the CPI increases. Over the medium range, the average cost rate decreases from 10.88 (for CPI increases of 2 percent) to 10.46 percent (for CPI increases of 6 percent). Over the long range, it varies from 13.22 to 12.49 percent.

The relationship described above results primarily from the time lag between the effect on income and on benefit outgo. When assuming a higher rate of increase in the CPI (in conjunction with a constant real-wage differential), the effect on income of the implied higher rate of increase in wages is experienced immediately, while the effect on benefits of the higher rate of increase in the CPI is experienced with about a half-year lag. In addition, the effect on benefits of the higher rate of increase in wages is experienced no earlier than 2 years later.

The average total income rate varies only slightly with changes in the CPI because most of the total income rate consists of the average payroll-tax rate, which is scheduled in the law and, therefore, not affected by economic assumptions. Thus, the actuarial balances vary by amounts similar in magnitude to the changes in the average cost rates, but in the opposite direction. The medium-range actuarial balance increases from 1.62 (for CPI increases of 2 percent) to 2.03 percent of taxable payroll (for CPI increases of 6 percent). The long-range balance increases from -0.33 to 0.36 percent.

REAL-WAGE DIFFERENTIAL

Table B2 shows the estimated average annual OASDI cost rate, total income rate, and balance, on the basis of alternative II-B with various real-wage assumptions. These assumptions are that the ultimate real-wage differential will be 1 percent (as in alternative III), 1.5 percent (as in alternative II-B), 2 percent (as in alternative II-A), and 2.5 percent (as in alternative I). In each case the ultimate annual CPI increase is assumed to be 4 percent (as under the unmodified alternative II-B), yielding ultimate percentage increases in average annual wages of 5, 5.5, 6, and 6.5 percent, respectively. The real-wage differential is assumed to gradually reach its ultimate value in 1993.

TABLE B2.—ESTIMATED AVERAGE ANNUAL OASDI COST RATE, TOTAL INCOME RATE, AND BALANCE UNDER ALTERNATIVE II-B WITH VARIOUS REAL-WAGE ASSUMPTIONS
[As a percentage of taxable payroll]

| Calendar years | Ultimate percentage increase in wages-CPI ¹ | | | |
|-----------------------------------|--|-------|-------|-------|
| | 5-4 | 5.5-4 | 6-4 | 6.5-4 |
| Average cost rate: | | | | |
| 1983-2007 | 11.04 | 10.66 | 10.31 | 9.98 |
| 2008-2032 | 13.51 | 12.64 | 11.84 | 11.11 |
| 2033-2057 | 16.39 | 15.23 | 14.16 | 13.21 |
| 1983-2057 | 13.65 | 12.84 | 12.10 | 11.43 |
| Average total income rate: | | | | |
| 1983-2007 | 12.51 | 12.50 | 12.48 | 12.47 |
| 2008-2032 | 12.99 | 12.95 | 12.92 | 12.88 |
| 2033-2057 | 13.21 | 13.15 | 13.10 | 13.05 |
| 1983-2057 | 12.90 | 12.87 | 12.83 | 12.80 |
| Balance: | | | | |
| 1983-2007 | +1.47 | +1.83 | +2.17 | +2.50 |
| 2008-2032 | .52 | +.32 | +1.08 | +1.78 |
| 2033-2057 | -3.18 | -2.08 | -1.07 | -.16 |
| 1983-2057 | -.74 | +.02 | +.73 | +1.37 |

¹The first value in each pair is the assumed annual percentage increase in average wages in 1993 and later years. The second value is the assumed annual percentage increase in CPI in 1989 and later years. The difference between the two values is the real-wage differential. The assumptions used in earlier years gradually merge into the ultimate values.

Note: The definitions of alternative II-B, cost rate, total income rate, balance, and taxable payroll are presented in the text.

Over the medium-range period, the average cost rate varies from 11.04 (for real-wage differentials of 1 percent) to 9.98 percent (for differentials

of 2.5 percent). Over the long-range period, it varies from 13.65 to 11.43 percent.

The average cost rate decreases with increasing real-wage differentials for two reasons. One is that there is a lag between the time when workers pay taxes based on the higher earnings and the time when they draw benefits based on those earnings. The other is that the benefits to those already eligible—benefits which generally increase with the CPI, not wages—are smaller relative to the payrolls based on the higher real-wage differentials.

Because of the relatively constant average total income rate, the actuarial balances vary by amounts similar in magnitude to the changes in the average cost rates, but in the opposite direction. (See the preceding discussion in regard to changes in the CPI assumptions.) The medium-range actuarial balance increases from 1.47 (for real-wage differentials of 1 percent) to 2.50 percent of taxable payroll (for real-wage differentials of 2.5 percent). The long-range actuarial balance increases from -0.74 to 1.37 percent.

APPENDIX C.—DETERMINATION AND ANNOUNCEMENT OF SOCIAL SECURITY BENEFIT INCREASES¹

I hereby determine and announce a cost-of-living increase of 7.4 percent in benefits under titles II and XVI of the Social Security Act.

Under title II, Old-Age, Survivors, and Disability Insurance benefits will increase by 7.4 percent beginning with the June 1982 benefits which are payable on July 2, 1982. This increase is based on the authority contained in section 215(i) of the Social Security Act (42 U.S.C. 415(i)), as amended by section 201 of Pub. L. 95-216 enacted December 20, 1977.

Under title XVI, supplemental security income payment levels will increase by 7.4 percent effective for payments made on July 1, 1982. This is based on the authority contained in section 1617 of the Social Security Act (42 U.S.C. 1382f).

TITLE II BENEFITS

Title II benefits are payable under the Federal Old-Age, Survivors, and Disability Insurance program. Individuals entitled under this program include insured workers, wives, husbands, children, widows, widowers, mothers, fathers, and parents.

In accordance with section 215(i)(4) of the Social Security Act (the Act), the primary insurance amounts and the maximum family benefits shown in columns IV and V of the revised benefit table (table 1) set forth below were obtained by increasing by 7.4 percent the corresponding amounts established by: (1) The last cost-of-living increase; and (2) the extension of the benefit table made under section 215(i)(4) and published on October 30, 1981 at 46 FR 53791. The table applies only to those persons who attained age 62, became disabled or died before January 1979 and is deemed to appear in section 215(a) of the Act. Note that this table does not apply to those individuals who reach age 62, become disabled, or die after 1978; their benefits will generally be determined by a new benefit formula provided by the Social Security Amendments of 1977 (Pub. L. 95-216). For persons first eligible for benefits in the period 1979-1982, the 7.4 percent increase will apply beginning June 1982; but the 7.4 percent increase will not apply for persons first becoming eligible for benefits after 1982.

Section 215(i)(2)(D) of the Act also requires that, when the Secretary determines a cost-of-living increase in Social Security benefits, the Secretary shall publish in the Federal Register a revision of the range of the primary insurance amounts and corresponding maximum family benefits based on the dollar amount and other provisions described in section 215(a)(1)(C)(i)(II). These benefits are referred to as "special minimum benefits" and are payable to certain individuals with long periods of relatively low earnings. In accordance with section 215(a)(1)(C)(i)(II), the attached table 2 shows the revised range of primary insurance amounts and corresponding maximum family benefit amounts after the 7.4 percent benefit increase.

Section 227 of the Act provides limited benefits to a worker who became age 72 before 1969 and was not insured under the usual requirements, and to his wife or widow. Section 228 of the Act provides

¹This statement, edited for presentation here, was published in the Federal Register for May 14, 1982 (Vol. 47, No. 94, pp. 20863-64).

similar benefits at age 72 for certain uninsured persons. The current monthly benefit amounts of \$117.00 for an individual and \$58.70 for a wife established under sections 227 and 228 of the Act are increased by 7.4 percent to obtain the new amounts of \$125.60 and \$63.00, respectively.

TITLE XVI BENEFITS

Section 1617 of the Act provides that whenever title II benefits are increased under section 215(i), the amounts in sections 1611(a)(1)(A), 1611(a)(2)(A), 1611(b)(1) and 1611(b)(2) of the Act and in section 211(a)(1)(A) of Pub. L. 93-66 shall be increased. The new amounts are effective for months after the month in which the title II increase is effective. The percentage increase is the same as the title II benefit increase and the annual payment amount is rounded, when not a multiple of \$1.20, to the next higher multiple of \$1.20.

In accordance with section 1617, Federal Supplemental Security Income (SSI) guarantees for the aged, blind, and disabled are increased effective with July 1982 by 7.4 percent. The current yearly Federal SSI guarantees of \$3,176.40 for an eligible individual and \$4,764.00 for an eligible individual with an eligible spouse are thereby increased to \$3,411.60 and \$5,116.80, respectively. The monthly payment is determined by dividing the yearly guarantee by 12 and then subtracting the monthly countable income. In the case of an eligible individual with an eligible spouse, the amount payable is further divided equally between the two spouses. The amount by which the Federal SSI guarantee amount is increased because of the presence of an essential person in the home, currently \$1,591.20 per year for each essential person under section 211(a)(1)(A) of Pub. L. 93-66, is also increased by 7.4 percent to obtain a new amount of \$1,710.00.

AUTOMATIC BENEFIT INCREASE DETERMINATION

Section 215(i) of the Act requires that when certain conditions are met in the first calendar quarter of a year, the Secretary shall determine that a cost-of-living increase in benefits is due. Section 215(i) of the Act also specifies the formula for determining the amount of any cost-of-living increase in benefits. This formula utilizes the Consumer Price Index for urban wage earners and clerical workers reported by the Department of Labor.

Section 215(i)(2)(A) of the Act requires the Secretary to determine each year whether there is a cost-of-living computation quarter in that year. If the Secretary so determines, the Secretary shall, effective with June of that year, increase benefits for individuals entitled under section 227 or 228 of the Act, shall increase the primary insurance amounts of all other individuals entitled under title II of the Act, and shall also increase the maximum benefits payable to a family. Section 1617 of the Act requires that SSI benefits be increased by the same percentage increase as title II benefits, whenever title II benefits are increased under section 215(i). The percentage increase is equal to the percentage increase in the Consumer Price Index for the cost-of-living computation quarter over the index for the most recent cost-of-living computation quarter.

Section 215(i)(1) of the Act defines a base quarter as a calendar quarter ending on March 31 in each year after 1974, or any other

calendar quarter in which occurs the effective month of a general benefit increase. Section 215(i)(1) also defines a cost-of-living computation quarter as a base quarter in which the Consumer Price Index prepared by the Department of Labor exceeds by not less than 3 percent the index in the later of (1) the last prior cost-of-living computation quarter or (2) the most recent calendar quarter in which a general benefit increase was effective. However, there shall be no cost-of-living computation quarter in any calendar year if in the prior year a general benefit increase was enacted or became effective. Section 215(i)(1) of the Act also provides that the Consumer Price Index for a cost-of-living computation quarter shall be the arithmetical mean of this index for the 3 months in that quarter.

The Department of Labor's revised Consumer Price Index for urban wage earners and clerical workers for each month in the quarter ending March 31, 1981 was: For January 1981, 260.7; for February 1981, 263.5; and for March 1981, 265.2. The arithmetical mean for this calendar quarter is 263.1. The corresponding Consumer Price Index for each month in the quarter ending March 31, 1982 was: For January 1982, 282.1; for February 1982, 282.9; and for March 1982, 282.5. The arithmetical mean for this calendar quarter is 282.5. The increase for the calendar quarter ending March 31, 1982 is 7.4 percent. Thus, since the percentage of increase in the Consumer Price Index from the calendar quarter ending March 31, 1981 to the calendar quarter ending March 31, 1982 is not less than 3 percent, the quarter ending March 31, 1982 is a cost-of-living computation quarter. Consequently, a cost-of-living benefit increase of 7.4 percent is effective for benefits under title II of the Act beginning June 1982.

(Catalog of Federal Domestic Assistance Programs Nos. 13.802-5, and 13.807 Social Security Programs)

Dated: May 10, 1982.

Richard S. Schweiker,
Secretary of Health and Human Services

(The revised tables of benefits which were published at the end of the above announcement in the Federal Register are not reproduced here because of their length.)